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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/005,876	12/07/2001	Jonathan D. Chesnut	0942.5340002/RWE/BJD	7958

26111 7590 01/16/2004

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EXAMINER

KETTER, JAMES S

ART UNIT

PAPER NUMBER

1636

DATE MAILED: 01/16/2004

Please find below and/or attached an Office communication concerning this application or proceeding.



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APPLICATION NO./ CONTROL NO.	FILING DATE	FIRST NAMED INVENTOR / PATENT IN REEXAMINATION	ATTORNEY DOCKET NO.
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EXAMINER

ART UNIT	PAPER
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010804

DATE MAILED:

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner for Patents

--See attached--

Office Action Summary

Application No.

10/005,876

Applicant(s)

CHESNUT ET AL.

Examiner

James S. Ketter

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 October 2003.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-45 is/are pending in the application.
- 4a) Of the above claim(s) 16-43 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 12 and 15 is/are allowed.
- 6) ☒ Claim(s) 1-11, 13, 14, 44 and 45 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 July 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

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Applicant's election with traverse of Group I in the paper filed 24 October 2003 is acknowledged. The traversal is on the ground(s) that there would not have been a burden to search both groups. This is not found persuasive because references may be found which anticipate the structural limitations of the product of Group I, but which do not contemplate the use of that product as covered in the method of using claims of Group II.

The requirement is still deemed proper and is therefore made FINAL.

Claims 16-43 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention, there being no allowable generic or linking claim.

Applicant timely traversed the restriction (election) requirement in the paper filed 24 October 2003.

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1-11, 13, 14, 44 and 45 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 8, 10 and 12 of U.S. Patent No. 5,888,732 (Hartley et al., of record as 47) in view of Shuman (U, newly cited), the instant

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claims over the patented claims as follows: instant claims 1-4, 6-11, 13 and 14 over patented claim 8; instant claim 5 over patented claim 10; and instant claims 44 and 45 over patented claim 12.

The instant claims differ from the patented claims in not teaching the use of a topoisomerase recognition site, more narrowly a topoisomerase I recognition site, as one of the claimed recombinase sites. Shuman teaches, e.g., at the abstract, the use of vaccinia topoisomerase to recombine DNA molecules in a site-specific fashion. It is taught that linear DNA molecules containing CCCTT sites at the ends can be cloned simply and rapidly into a plasmid vector. It would have been obvious to one of ordinary skill in the art to have made a variant of the invention as set forth in the patented claims by selecting topoisomerase I as one of the recombinases, as taught by Shuman, motivated by the simplicity and ease of the topoisomerase system, as taught by Shuman.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-4, 6-11, 13, 14, 44 and 45 are rejected under 35 U.S.C. 102(b) as being anticipated by Shuman (U).

The instant claims may be interpreted as having the recited one or more recombination sites as general recombination sites, i.e., sites which would be capable of directing integration by

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general homologous recombination mechanisms known in the cells many different species or microbial strains. For example, in Figure 5 of Shuman, the plasmid resulting from the insertion of the bivalent linker (which contains the topoisomerase binding sites) into pUC18 would have topoisomerase sites flanked by pUC18 sites, which pUC18 sites could direct homologous (general) recombination with the corresponding pUC18 sequences of another pUC18 molecule. Shuman teaches, in particular, the use of vaccinia topoisomerase sites. Shuman also teaches, e.g., at Figure 5, the insertion of such the DNA construct into a host cell. The teaching of the DNAs and topoisomerases together would read upon a kit.

Claims 1-3, 5, 10, 11, 13, 14, 44 and 45 are rejected under 35 U.S.C. 102(b) as being anticipated by Zechiedrich et al. (V).

Zechiedrich et al. teaches, e.g., at Figure 1, a plasmid, pJB3.5d, containing a binding site for Int recombinase (an att site) as well as a site for topoisomerase IV binding. The teaching of the DNAs and topoisomerases together would read upon a kit.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-11, 13, 14, 44 and 45 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hartley et al. (47) in view of Shuman (U).

Hartley et al. teaches, e.g., as shown in Figure 1, DNA molecules, in particular circular plasmids, comprising two or more different recombinase sites. Figure 2A shows attP/attL and lox sites being used. Hartley et al. differs from the claimed invention in not teaching the use of a topoisomerase recognition site, more narrowly a topoisomerase I recognition site, as one of the claimed recombinase sites. Shuman teaches, e.g., at the abstract, the use of vaccinia topoisomerase to recombine DNA molecules in a site-specific fashion. It is taught that linear DNA molecules containing CCCTT sites at the ends can be cloned simply and rapidly into a plasmid vector. Furthermore, the teaching of the DNAs and topoisomerases together would read upon a kit.

It would have been obvious to one of ordinary skill in the art to have modified the 2-recombinase recombination system of Hartley et al. by selecting topoisomerase I as one of the recombinases, as taught by Shuman, motivated by the simplicity and ease of the topoisomerase system, as taught by Shuman.

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The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claim 5 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claim 5 recites "mutants, variants and derivatives of the recombination sites of (a), (b), (c), (d), (e), (f), (g), (h) or (i) which retain the ability to undergo recombination." The claims thus encompass potentially a very large genus of binding sites, with a vast number of permutations for each recited site. However, there is not sufficient information set forth in the specification or available in the prior art to permit a determination of which mutations to each binding site will retain activity and which will not. Furthermore, it is not apparent that the art teaches any theory or algorithm which would permit the determination of whether a particular sequence holds an active recombination site as claimed. As such, there is an insufficient structure-function relationship between the sequence and the function or activity as a recombinase binding site.

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The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-11, 13, 14, 44 and 45 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

With respect to claim 1, and thus all claims ultimately depending therefrom, the claim is drawn to a "nucleic acid molecule comprising...one or more topoisomerases." However, a nucleic acid cannot comprise an enzyme, which is a protein. Rather, it might encode a protein, in this instance, the topoisomerase.

Claim 5 recites "mutants, variants and derivatives of the recombination sites of (a), (b), (c), (d), (e), (f), (g), (h) or (i) which retain the ability to undergo recombination." However, it is not clear what a mutant, variant or derivative encompasses. For example, if a recited lox site were completely mutated into a site for another recombinase, in particular one not recited in claim 5, would the newly mutated site still be encompassed within claim 5? This is not clear, and as such, the metes and bounds of the instant claim are indefinite.

Claims 12 and 15 are allowed.

Certain papers related to this application may be submitted directly to the Examiner by facsimile transmission at (703) 746-5155 (or to (571) 273-0770 after 1/13/2004). The faxing of such papers must conform with the notices published in the Official Gazette, 1156 OG 61 (November 16, 1993) and 1157 OG 94 (December 28, 1993)(see 37 CFR ' 1.6(d)). To send the

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facsimile to the Art Unit instead, the Art Unit 1636 Fax number is (703) 305-7939. NOTE: If Applicant does submit a paper by fax to this number, the Examiner must be notified promptly, to ensure matching of the faxed paper to the application file, and the original signed copy should be retained by Applicant or Applicant's representative. (703) 308-4242 or (703) 305-3014 may be used without notification of the Examiner, with such faxed papers being handled in the manner of mailed responses. Applicant is encouraged to use the latter two fax numbers unless immediate action by the Examiner is required, e.g., during discussions of claim language for allowable subject matter. NO DUPLICATE COPIES SHOULD BE SUBMITTED so as to avoid the processing of duplicate papers in the Office.

Any inquiry concerning this communication or earlier communications from the Examiner with respect to the examination on the merits should be directed to James Ketter whose telephone number is (703) 308-1169 (or (571) 272-0770 after 1/13/2004). The Examiner normally can be reached on M-F (9:00-6:30), with alternate Fridays off.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Remy Yucel, can be reached at (703) 305-1998.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1234.

Jsk
January 8, 2004



JAMES KETTER
PRIMARY EXAMINER